

MONITORING WELL WORKPLAN AND MONITORING WELL INSTALLATION REPORT REQUIREMENTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing, at a minimum, the information listed in Section A, below. Wells may be installed after staff approves the workplan. Upon installation of the monitoring wells, the Discharger shall submit a well installation report, which includes the information contained in Section C, below. All workplans and reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

SECTION A - Monitoring Well Installation Workplan

A. General Information:

- Purpose of well installation project
- Copies of County Well Construction Permits (to be submitted after workplan review)
- Monitoring well locations and rationale
- Survey details
- Equipment decontamination procedures
- Health and safety plan
- Topographic map showing any existing wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details:

- Describe drilling technique
- Sampling intervals and logging methods

C. Monitoring Well Design:

- Casing diameter and centralizer spacing (if needed)
- Borehole diameter
- Depth of surface seal
- Well construction materials
- Diagram of proposed well construction details
- Type of well cap, bottom cap either screw on or secured with stainless steel screws
- Size of perforations and rationale
- Grain size of sand pack and rationale
- Thickness and position of bentonite seal and sand pack
- Depth of well, length and position of perforated interval

D. Well Development:

- Method of development to be used
- Method of determining when development is complete
- Parameters to be monitored during development
- Method of development water storage and disposal

E. Well Survey:

- Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
- Describe the well features to be surveyed (i.e. top of casing, vertical coordinates, etc.)
- Vertical accuracy shall be to at least 0.01 foot

F. Well Sampling:

- Minimum time after development before sampling (48 hours)
- Well purging method and amount of purge water
- Sample containers, collection method, and preservation method
- Table describing sample volumes, sample containers, preservation agents, and hold times
- QA/QC procedures

G. Water Level Measurement:

- The elevation reference point at each monitoring well shall be within 0.01 foot. Ground surface elevation at each monitoring well shall be within 0.01 foot.
- Method and time of water level measurement shall be specified.

H. Proposed time schedule for work.

SECTION B - Monitoring Well Installation Report

A. Well Construction:

- Number and depth of wells drilled
- Date(s) wells drilled and completed
- Description of drilling and construction
- Scaled map of facility site features including monitoring wells, buildings, storage ponds, waste piles, etc.
- A well construction diagram for each well must be included in the report, and must contain the following details:
 - Total depth drilled
 - Drilling Contractor and driller name
 - Depth of open hole (same as total depth drilled if no caving occurs)
 - Method and materials of grouting excess borehole
 - Footage of hole collapsed
 - Length of slotted casing installed
 - Depth of bottom of casing
 - Depth to top of sand pack
 - Thickness of sand pack
 - Depth to top of bentonite seal
 - Thickness of bentonite seal
 - Thickness of concrete grout
 - Boring diameter
 - Casing diameter
 - Casing material
 - Size of perforations
 - Well elevation at top of casing
 - Stabilized depth to groundwater
 - Date of water level measurement
 - Monitoring well number
 - Date drilled
 - Location

B. Well Development:

- Date(s) of development of each well
- Method of development
- Volume of water purged from well
- How well development completion was determined
- Method of effluent disposal
- Field notes from well development should be included in report.

C. Well Survey:

- Identify the coordinate system or reference points
- Survey the well casing with the cap removed (horizontal and vertical coordinates)
- Registered Engineer or Licensed Surveyor's report and field notes in appendix
- Describe the measuring points (i.e. ground surface, top of casing, etc.)
- Tabular survey data

D. Well Sampling:

- Well purging method and amount of purge water, purge water storage
- Sample containers, collection method, and preservation method
- Table describing sample volumes, sample containers, preservation agents, MDLs, PQLs, and hold times
- Identification of analytical laboratory
- Chain of custody procedures
- QA/QC procedures